

***Vitronura mascula*, a new species of Neanurinae
(Collembola: Neanuridae) from northern Vietnam, with a key
to the species of the genus**

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***Vitronura mascula*, a new species of Neanurinae (Collembola:
Neanuridae) from northern Vietnam, with a key to the species of the
genus.** - A new species of the genus *Vitronura* Yosii, 1954 sensu Cassagnau,
1986 from northern Vietnam is described and illustrated. An identification
key for all the known species of the genus is given.

Keywords: Collembola - Neanuridae - taxonomy - Vietnam.

INTRODUCTION

Yosii (1969) established the subgenus *Vitronura* in the genus *Neanura* MacGillivray, 1893 and designated *Neanura mandarina* Yosii, 1954 from Japan as its type species. Cassagnau (1980) raised *Vitronura* to generic status and later (1983) classified the taxon to a lineage of blasconurian Neanurinae. At present the genus is included in the tribe Paleonurini (Cassagnau, 1989). The presence of separate tubercles Fr and An on dorsal side of the head distinguish *Vitronura* from all genera of Paleonurini. As presently defined, the genus comprises 14 species, occurring mainly in Southeast and Eastern Asia.

Till now only one cosmopolitan species, *V. gisela*e (Gisin, 1950), was recorded from Vietnam (Nguyen, 1995). Examination of the material of Collembola from northern Vietnam revealed one new species of the genus. The present paper contains its description and an updated key to all members of the genus.

TERMINOLOGY

The terminology and layout of the tables used in this paper follow Deharveng (1983), Deharveng & Weiner (1984) and Greenslade & Deharveng (1990), and the following abbreviations are used:

GENERAL MORPHOLOGY: abd. – abdomen, ant. – antenna, Cx – coxa, Fe – femur, Scx2 – subcoxa 2, T – tibiotarsus, th. – thorax, Tr – trochanter, VT – ventral tube.

GROUPS OF CHAETAE: Ag – antegenital, An. – anal, Fu – furcal, Ve – ventroexternal, Vi – ventrointernal, Vl – ventrolateral.

TUBERCLES: An – antennal, Fr – frontal, Cl – clypeal, De – dorsoexternal, Di – dorsointernal, Dl – dorsolateral, L – lateral, Oc – ocular, So – subocular.

TYPES OF CHAETAE: Ml – long macrochaeta, Mc – short macrochaeta, me – mesochaeta, mi – microchaeta, ms – s-microchaeta, S – or s – chaeta sensualis or sensillum, or – organite of antenna IV, i – ordinary chaeta on antenna IV, mou – thin cylindrical sensilla on ant. IV („soies mousses”), x – labial papilla x.

DESCRIPTION OF THE NEW SPECIES

Vitronura mascula sp. n.

TYPE MATERIAL: Holotype, adult male on slide; northern Vietnam, Tam Dao National Park, the top of Tam Dao mount (1300 m. a. s. l.), 08.04.1997, mosses and lichens on rhododendron branches, leg. R. J. Pomorski. Paratype, 1 subadult male, the same data as holotype. Holotype is preserved in collection of the Department of Biodiversity and Evolutionary Taxonomy, Wrocław University, Poland; paratype housed in the collection of the Muséum d'histoire naturelle in Geneva.

ETYMOLOGY: Among known members of the genus, only males of the new species have male (Latin word "masculus") ventral organ.

DIAGNOSIS: *Vitronura mascula* sp. n. differs from other *Vitronura* species in the presence of male ventral organ and strong reduction of dorsal chaetotaxy on head (absence of chaetae: O, C, D, E, Oca, Ocp, Di2, De2). In addition the new species is characterised by ogival labrum, claw without inner denticle and separate tubercles Di on head and abd. V.

DESCRIPTION: Body length (without antennae): holotype - 1.05 mm, paratype - 1.1 mm. Habitus typical of *Paleonurini* (Cassagnau, 1989). Tertiary granulation well developed. Colour of the body in alcohol white. 2+2 unpigmented eyes (Fig. 1).

Types of dorsal ordinary chaetae: macrochaetae Ml thickened, moderately long, narrowly sheathed, the distal three-fourth densely furnished with short pointed scale-like (teeth) which are extremely dense at the tip (Fig. 4), macrochaetae Mc with similar morphology, microchaetae very short, smooth, without teeth.

Head. Buccal cone slightly elongate. Labrum pointed, with ventral sclerifications ogival as in Figs 2, 3. Labrum chaetotaxy 0 / 2, 4. Chaetotaxy of labium as in Fig. 3 and Tab. 1a. Maxilla styliform, mandible thin and tridentate. Chaetotaxy of antennae as in Tab. 1a. Apical bulb distinct, trilobed. S-chaetae subequal, long and moderately thickened. Chaetotaxy of head as in Fig. 1 and in Tab. 1a. Chaeta O absent.

Thorax, abdomen, legs. Chaetotaxy of th. and abd. as in Figs 1, 8 and in Tab. 1b. Tubercles Di on th. II-III with 2 chaetae. Male ventral organ fully developed only in adult male with ductus ejaculatorius (in subadult poorly visible), built of thickened and slightly forked chaetae on abdominal sterna III, IV, V and VI (Fig. 8). Chaetae of ventral organ in subadult with similar morphology as microchaetae (not thickened and not forked), but with distinctly greater chaetopor (Fig. 6). Tubercles L on abd. IV and

Table 1. Chaetotaxy of *Vitronura mascula* sp. n.

a) Cephalic chaetotaxy

Tubercl	Number of chaetae	Types of chaetae	Names of chaetae
Cl	4	Ml mi	F G
An	1	Ml	B
Fr	2	Ml	A
Oc	1	Ml	Ocm
Di	1	Ml	Dil
De	1	Ml	Del
(Dl+L+So)	9	Ml, Mc, mi	impossible to recognise

Number of other cephalic chaetae: Vi, 5; Ve, 7; labrum, 0 / 2, 4; labium, 9, 0x; ant. I, 7; ant. II, 11; ant. III, 17 + 5s; ant. IV, 8S + i + or + 12mou.

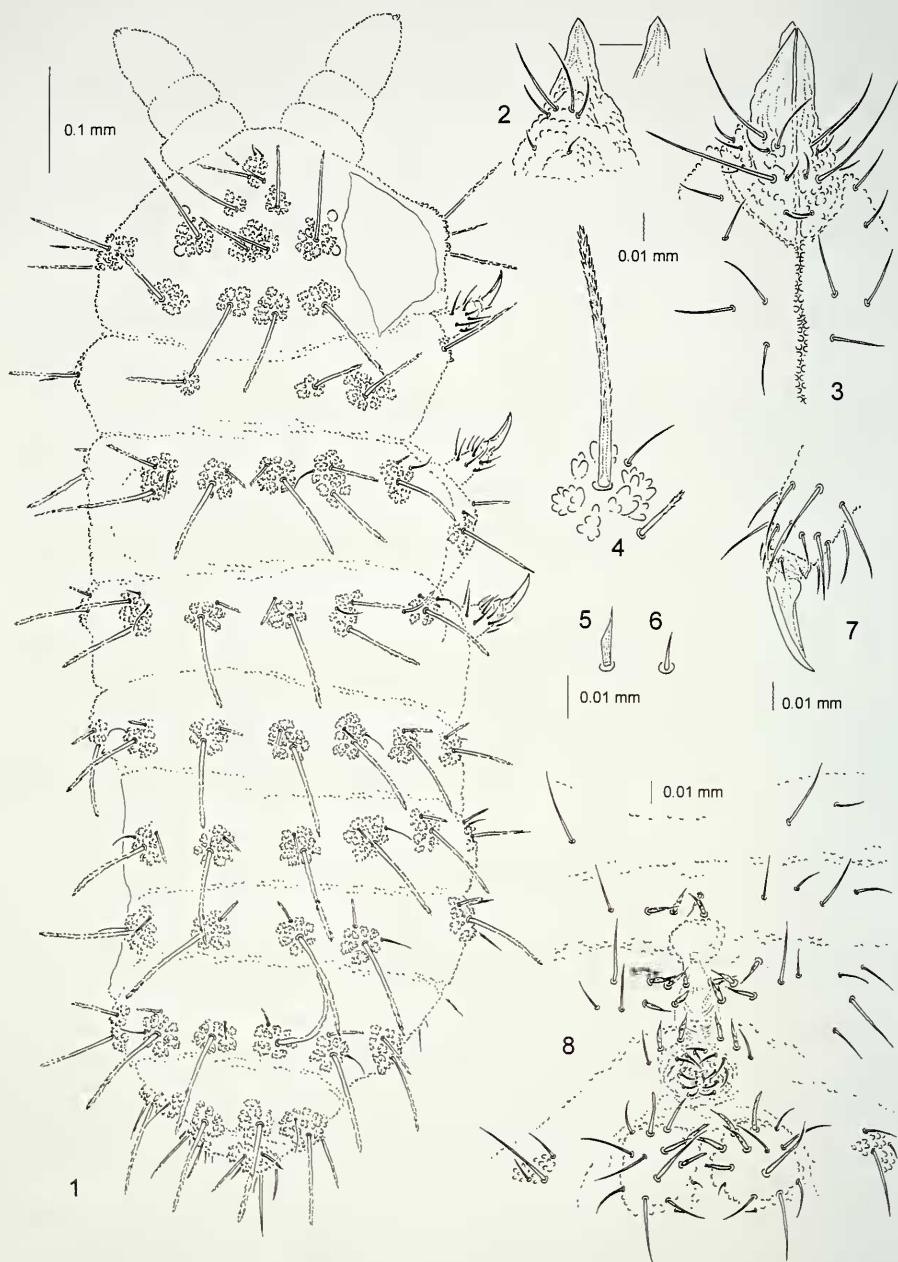
b) Postcephalic chaetotaxy

	Di	De	Terga Dl	L	Scx2	Cx	Legs Tr	Fe	T
th. I	1	1(2)	1	-	0	3	6	13	18
th. II	2	2+s	2+s+ms	3	2	7	6	12	18
th. III	2	3+s	3+s	3	2	8	6	11	17
Sterna									
abd. I	2	2+s	2	3	VT: 4				
abd. II	2	2+s	2	3	Ve: 2	Ve1- absent			
abd. III	2	2+s	2	3	Ve: 3-4		Fu: 4 me	0 mi	
abd. IV	2	2+s	2	5	Ve: 8-9			Vl: 4	
abd. V	1(2)		5+s	3	Ag: 3				
abd. VI			7		Ve: 14		An.: 2mi		

V respectively with 5 and 3 chaetae (Fig. 5). Cryptopygus absent. Chaetotaxy of legs as in Tab. 1b. Claw relatively long, without inner tooth (Fig. 7).

REMARKS: The new species appears to be the closest to *V. tuberculata* Lee & Kim, 1990 from Taiwan, because both species have similar morphology of macrochaetae and claws without teeth. *Vitronura mascula* sp. n. differs from the mentioned species in separate tubercles Di on head (in *tuberculata* fused), number of chaetae Di of th. II-III (in *mascula*: 2, in *tuberculata*: 3) and number of chaetae De of abd. I-III (in *mascula*: 2+s, in *tuberculata*: 3+s).

The genus *Vitronura* was first keyed by Cassagnau & Deharveng (1981). Changes in definition of the genus (Cassagnau, 1986) and four species described after that date make it necessary to elaborate an updated key. The key includes among others species *Vitronura giselae*, *V. mandarina* and *V. dentata*, which were formally synonymized by Yoshii (1995). This author considered *V. giselae* and *V. mandarina* as synonyms of *rosea*, a species very succinctly described from Paris by Gervais in 1842; two species of yellow to pink color exist there, i.e. *Vitronura "giselae"* Gisin and



FIGS 1-8

Vitronura mascula sp. n.: 1 - habitus and dorsal chaetotaxy (holotype), 2 - chaetotaxy of labrum, 3 - chaetotaxy of labium and group Vi, 4 - tubercle De of abd. IV, 5 - chaeta of male ventral organ (adult male), 6 - chaeta of male ventral organ (subadult male), 7 - tibiotarsus and claw of legs III (lateral view), 8 - chaetotaxy of abdominal sterna II-VI.

Monobella grassei Denis, and there is no conclusive evidence that *rosea* correspond to one rather than the other of them. We therefore continue to consider *Anoura rosea* Gervais, 1842 as species inquirenda. As differential characters between *giselae* and *mandarina* are not discussed by Yoshii, the synonymy he proposed cannot be accepted at the moment. For the same reason, the synonymy between *dentata* Deharveng & Weiner, 1983 and *pygmaea* Yosii, 1954 proposed in the same paper (Yoshii, 1995) cannot be retained. Differential characters between these species are given in the key.

KEY TO THE SPECIES OF THE GENUS VITRONURA

1	Tubercle Oc on head with 1 or 2 chaetae	2
-	Tubercle Oc on head with 3 chaetae	10
2	Tubercle Oc on head with 1 chaeta	<i>V. muscula</i> sp. n.
-	Tubercle Oc on head with 2 chaetae	3
3	Tubercles Di on head fused along midline	<i>V. tuberculata</i> Lee & Kim, 1990
-	Tubercles Di on head separate	4
4	Chaeta O on head present	7
-	Chaeta O on head absent	5
5	Tubercles Di on abd. V fused along midline	<i>V. sinica</i> Yosii, 1976
-	Tubercles Di on abd. V separate	6
6	Tubercle De of th. V with 5 chaetae	<i>V. luzonica</i> Yosii, 1976
-	Tubercle De of th. V with 4 chaetae	<i>V. gressitti</i> Cassagnau & Deharveng, 1981
7	Tubercle Di of th. I with 2 chaetae	<i>V. latior</i> (Rusek, 1967)
-	Tubercle Di of th. I with 1 chaeta	8
8	Claw with inner denticle	9
-	Claw without inner denticle	<i>V. mandarina</i> (Yosii, 1954)
9	Tubercle Di of abd. V with 2 chaetae	<i>V. namhaiensis</i> (Lee, 1974)
-	Tubercle Di of abd. V with 3 chaetae	<i>V. pygmaea</i> (Yosii, 1954)
10	Tubercle De on head with 2 chaetae	<i>V. joanna</i> (Coates, 1968)
-	Tubercle De on head with 3 chaetae	11
11	Tubercles Di on head fused along midline	12
-	Tubercles Di on head separate	13
12	Chaeta O on head present	<i>V. macgillivrayi</i> (Denis, 1933)
-	Chaeta O on head absent	<i>V. singaporiensis</i> (Yossi, 1956)
13	Claw with inner denticle	<i>V. dentata</i> Deharveng & Weiner, 1984
-	Claw without inner denticle	14
14	Labrum distally ogival	<i>V. acuta</i> Deharveng & Weiner, 1984
-	Labrum non-ogival	<i>V. giselae</i> (Gisin, 1950)

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REFERENCES

- CASSAGNAU, P. 1980. Nouveaux critères pour un redécoupage phylogénétique des Collemboles Neanurinae (s. Massoud 1967). In: DALLAI, R. (ed.). 1st International Seminar on Apterygota, Siena 1978: 115-132.
- CASSAGNAU, P. 1983. Un nouveau modèle phylogénétique chez les Collemboles neanurinae. *Nouvelle Revue d'Entomologie* 13: 3-27.
- CASSAGNAU, P. 1986. Sur l'évolution des Neanurinae paucituberculés à pièces buccales réduites (Collemboles). In: DALLAI, R. (ed.). 2nd International Seminar on Apterygota, Siena: 313-317.
- CASSAGNAU, P. 1989. Les Collemboles Neanurinae; éléments pour une synthèse phylogénétique et biogéographique (pp.171-182). In: DALLAI, R. (ed.). 3rd International Seminar on Apterygota, Siena: 171-182.
- CASSAGNAU, P. & DEHARVENG, L. 1981. Sur le genre *Vitronura* (Collemboles Neanuridae): aspect systématique et approche cytogénétique. *Bulletin du Muséum National d'Histoire Naturelle, Paris* 4 (3): 151-173.
- DEHARVENG, L. 1983. Morphologie évolutive des Collemboles Neanurinae en particulier de la lignée Neanurinae. *Travaux du Laboratoire d'Écobiologie des Arthropodes Edaphiques, Toulouse* 4 (2): 1-63.
- DEHARVENG, L. & WEINER, W. 1984. Collemboles de Corée du Nord III - Morulinae et Neanurinae. *Travaux du Laboratoire d'Écobiologie des Arthropodes Edaphiques, Toulouse* 4 (4): 1-61.
- GREENSLADE, P. & DEHARVENG, L. 1990. Australian species of the genus *Australonura* (Collembola, Neanuridae). *Invertebrate Taxonomy* 3: 565-593.
- LEE, B-H. & KIM, J-T. 1990. Systematic Studies on Chinese Collembola (Insecta) II. Five New Species and Two New Records from Taiwan in the Family Neanuridae. *The Korean Journal of Systematic Zoology* 6 (2): 235-250.
- NGUYEN TRI TIEN, 1995. Species composition and structure of Collembola in North Vietnam. In: Selected collection of scientific reports on ecology and biological resources. *Vietnam National Center for Natural Science and Technology, Institute of Ecology and Biological Resources, Hanoi*: 578-585.
- YOSHII, R. 1995. Identity of some Japanese Collembola III. *Acta Zoologica Asiae Orientalis* 3: 50-68.
- YOSII, R. 1969. Collembola-Arthropleona of the IBP-Station in the Shiga Heights, Central Japan, I. *Bulletin of the National Science Museum Tokyo* 12 (3): 531-556.